

	<p>Ministry of Higher Education and Scientific Research - Iraq</p> <p>University of Warith Al_Anbiyaa College of Engineering Civil Engineering Department</p>	
---	---	---

MODULE DESCRIPTOR FORM

Module Information			
Module Title	APPLICATIONS OF STATISTICS IN CIVIL ENGINEERING		Module Delivery
Module Type	BASIC		Theory lecture
Module Code	CIV025		
ECTS Credits	7		
SWL (hr/sem)	175		
Module Level	1	Semester of Delivery	
Administering Department	Civil engineering	College	Engineering
Module Leader	sally Muwafaq Talib	e-mail	Sallay.muwafaq@uowa.edu.iq
Module Leader's Acad. Title	Assist. Lect.	Module Leader's Qualification	Msc
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Review Committee Approval	2024/9/26	Version Number	1.0

Relation With Other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	<ol style="list-style-type: none"> 1. To develop problem solving skills and understanding of statistical basics. 2. To understand different types of statistical datasets and how represent it in different ways, such as, tables and graphs. 3. To describe the datasets using numerical ways, such as, central measurements, the datasets distribution and dispersion. 4. To understand the basics of the probability theory. 5. To understand probability distributions, for example, discrete probability distribution, normal distribution, and binomial distribution. 6. To understand the basic of regression analysis and correlations, with more focus on the linear regression.
Module Learning Outcomes	<ol style="list-style-type: none"> 1. Understanding the definition of statistics and statistical data collection methods. 2. Representing datasets in graphical and tables forms. 3. Determining central measurements, mean, mode and median of a dataset. 4. Determining standard deviation, variance, and variance coefficient of a dataset. 5. Describing a dataset using its quartiles, percentiles and deciles. 6. Defining the shape of a dataset's curve using kurtosis and skewness. 7. Defining the probability theory. 8. Explaining conditional probability. 9. Describing events' types, and describing mutually exclusive events. 10. Explaining the permutations and combinations, multiplication base and summation base in the probability theory. 11. Defining sampling distribution of computational media. 12. Understanding discrete probability distributions, binomial distribution. 13. Understanding polynomial distribution, Poisson distribution. 14. Understanding related Probability distributions, the normal distribution. 15. Understanding correlation and linear regression.
Indicative Contents	<p>Indicative content includes the following.</p> <p>The definition of statistics and statistical data collection methods. Representing datasets in graphical (i.e. histograms, pie charts, ogives, polygons) and tables (i.e. frequency distribution tables) forms. Determining central measurements y using mean, mode, midrange and median. Determining standard deviation, variance, and variance coefficient of a dataset. Describing a dataset using its quartiles, percentiles and deciles. Defining the shape of a dataset's curve using kurtosis and skewness. Defining the probability theory. Explaining conditional probability. Describing events' types, and describing mutually exclusive events. Explaining the permutations and combinations, multiplication base and summation base in the probability theory. Defining sampling distribution of computational media.</p>

	Understanding discrete probability distributions, binomial distribution. Understanding polynomial distribution, Poisson distribution. Understanding related Probability distributions, the normal distribution. Understanding correlation and linear regression.
Learning and Teaching Strategies	
Strategies	The main strategy that will be adopted in delivering this module is due to the students' contribution in class discussions and problem solving, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive explaining the module basics and by considering types of examples that are interesting to the students.

Student Workload (SWL)			
Structured SWL (h/sem)	93	Structured SWL (h/w)	6
Unstructured SWL (h/sem)	82	Unstructured SWL (h/w)	5
Total SWL (h/sem)	175		

Module Evaluation					
		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO # 1, 2; 6 and 7
	Assignments	2	10% (10)	2, 12	LO # 1,2,3,4; 5, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100%(100)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction of statistic, Identify sources, Statistical terms, selections of information.
Week 2	Statistical distributions, Frequency Tables Represent the distributions graphically
Week 3	Measures of central tendency (mean, mode, and median), the geometric mean, harmonic mean. Compared of Measures of central tendency (mean, mode, and median)
Week 4	Change and dispersion measurements; standard deviation, variance and coefficient of

	variation.
Week 5	Measures of position (percentiles, deciles, quartiles)
Week 6	Measures of shape (kurtosis and Skewness).
Week 7	Principles of the theory of probability (Introduction), Vin Graph. Intersection and Union in the theory of probability
Week 8	Conditional probability
Week 9	Independent events, mutually exclusive events
Week 10	permutations and combinations, Multiplication base and summation base
Week 11	Sampling distribution of computational media
Week 12	Discrete probability distributions, binomial distribution
Week 13	Polynomial distribution, Poisson distribution
Week 14	Related Probability distributions, the normal distribution
Week 15	Correlation and linear regression
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered
Week 1	لا يوجد
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	1. Mann, Prem S. "INTRODUCTORY STATISTICS", John Wiley & Sons, 5 th edition, 2003. 2. د. نعمة حمد عمارة وسحر شاكر توفيق: الإحصاء وتطبيقاته الهندسية	Yes
Recommended Texts	Bluman, Allan G. "Elementary Statistics A Step by Step Approach", Mc Grew Hill, 2012	No
Websites		

APPENDIX:

GRADING SCHEME				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.